

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC • Indianapolis, IN
46268

Effective Date: 05/28/98
Product Code: 61232
MSDS: 006134

PRECISE* INSECT SOLUTION

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: PRECISE* INSECT SOLUTION

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
P.O. Box 681428
9330 Zionsville Road
Indianapolis, IN 46268-1189
www.dowagro.com

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Spinosad:

Spinosyn A	CAS # 131929-60-7	0.5%
Spinosyn D	CAS # 131929-63-0	

Proprietary Ingredients, total, including: 99.5%
Propylene glycol (1,2-Propanediol) CAS # 000057-55-6

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Off-white to tan liquid suspension with low odor. May cause slight eye irritation. The LD50 for skin absorption in rabbits is >5000 mg/kg. The oral LD50 for rats is >5000 mg/kg. Product is highly toxic to marine molluscs, moderately to slightly toxic to fish, slightly toxic to aquatic invertebrates, and practically non-toxic to birds.

EMERGENCY PHONE NUMBER: (U.S.) 800-992-5994

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

EYE: May cause slight eye irritation.

SKIN: The LD50 for skin absorption in rabbits is >5000 mg/kg. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Prolonged exposure is not likely to cause significant skin irritation. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Single dose oral toxicity is extremely low. The oral LD50 for rats is >5000 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: Single exposure to concentrate mist is not likely to cause adverse effects.

SYSTEMIC (OTHER TARGET ORGANS) EFFECTS: In animals, has been shown to cause vacuolation of cells in various tissues and changes in blood and serum biochemistry. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

CANCER INFORMATION: For spinosad, studies were negative.

TERATOLOGY (BIRTH DEFECTS): For spinosad, did not cause birth defects in laboratory animals.

REPRODUCTIVE EFFECTS: For spinosad, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

4. FIRST AID:

EYE: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not determined (aqueous suspension)

METHOD USED: Not applicable

FLAMMABLE LIMITS:

LFL: Not determined (water-based product)

UFL: Not determined (water-based product)

EXTINGUISHING MEDIA: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

FIRE AND EXPLOSION HAZARDS: Keep people away. Isolate fire area and deny unnecessary entry. Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds.

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FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES: (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS/LEAKS: Use non-reactive absorbent to absorb small spills and collect for disposal. For large spills, contain the material, report to CHEMTREC and consult Dow AgroSciences for assistance.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Avoid eye contact. Do not take internally. Wash thoroughly after handling and before eating, drinking, or smoking. Store product in original container. See product label for additional instructions.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES:

Propylene glycol: AIHA WEEL is 50 ppm total, 10 mg/m³ aerosol only.

Spinosad: Dow AgroSciences Industrial Hygiene Guideline is 0.3 mg/m³, TWA

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions.

EYE/FACE PROTECTION: Use of safety glasses is recommended.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed. See product label for additional instructions.

RESPIRATORY PROTECTION: No respiratory protection should be needed.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 100°C (212°F) water

PHYSICAL STATE: Liquid suspension

ODOR: Low

DENSITY: 1.09 g/ml

SOLUBILITY IN WATER: Disperses

VAPOR PRESSURE: Similar to water

APPEARANCE: Off-white to light tan

10. STABILITY AND REACTIVITY:

STABILITY (CONDITIONS TO AVOID): Thermally stable at typical use temperatures. Some components of this product can decompose at elevated temperatures.

INCOMPATIBILITY (SPECIFIC MATERIALS TO AVOID): None known

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: For spinosad, in-vitro and animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE: MOVEMENT & PARTITIONING: Bioconcentration potential is low.

Bioconcentration factors for rainbow trout are: Spinosyn A = 19 Spinosyn D = 33

DEGRADATION AND PERSISTENCE: Based on information for spinosyn A: The photolysis half-life in soil is 8.68 days, the photolysis half-life in pH 7 buffer is 0.96 days. Under aerobic soil conditions the half-life is 9.4 and 14.5 days. Based on information for spinosyn D: The photolysis half-life in soil is 9.44 days, the photolysis half-life in pH 7 buffer is 0.84 days. Under aerobic soil conditions the half-life is 14.5 days.

ECOTOXICOLOGY:

Product is highly toxic to marine molluscs on an acute basis (LC/EC50 between 0.1 and 1.0 mg/L in most sensitive species). Acute EC50 for shell deposition inhibition in eastern oyster (*Crassostrea virginica*) is 0.295 mg/L.

Product is moderately to slightly toxic to fish on an acute basis (LC50 between 1 and 100 mg/L). Acute LC50 for mirror or common carp (*Cyprinus carpio*) is 3.49-4.99 mg/L. Acute LC50 for bluegill (*Lepomis macrochirus*) is 5.94 mg/L.

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Acute LC50 for sheepshead minnow (*Cyprinodon variegatus*) is 7.87 mg/L. Acute LC50 for rainbow trout (*Oncorhynchus mykiss*) is 30 mg/L.

Product is slightly toxic to aquatic invertebrates on an acute basis (LC50/EC50 between 10 and 100 mg/L). Acute LC50 for water flea (*Daphnia magna*) is 92.7 mg/L. Acute immobilization EC50 for water flea (*Daphnia magna*) is 14 mg/L. Acute LC50 for grass shrimp (*Palaemonetes pugio*) is >9.76 mg/L. Maximum acceptable toxicant concentration (MATC) is 0.692 mg/L in rainbow trout. Growth inhibition EC50 for diatom (*Navicula* sp.) is 0.107 mg/L. Growth inhibition EC50 for marine diatom (*Skeletonema costatum*) is 0.227 mg/L. Growth inhibition EC50 for blue-green alga (*Anabaena flos-aquae*) is 8.09 mg/L.

Product is practically non-toxic to birds on an acute basis (LD50 >2000 mg/kg). Product is practically non-toxic to birds on a dietary basis (LC50 >5000 ppm). Acute oral LD50 for bobwhite (*Colinus virginianus*) is >2000 mg/kg. Acute oral LD50 for mallard (*Anas platyrhynchos*) is >2000 mg/kg. Dietary LC50 for bobwhite (*Colinus virginianus*) is >5253 ppm. Dietary LC50 for mallard (*Anas platyrhynchos*) is >5156 ppm.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Improper disposal of excess product, or spray mixture, is a violation of the Federal law. If these wastes cannot be disposed by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA regional office for guidance.

14. TRANSPORT INFORMATION:

This product is not regulated by DOT when shipped domestically by land.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws.

The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
1,2-PROPANEDIOL	000057-55-6	PA1

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS:

New

Reference: DR-0358-8349

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.